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Cortisone versus Aspirin

IN early rheumatoid arthritis cortisone relieves symptoms no more effectively than aspirin. This conclusion, recalled some weeks ago by Dr. BAYLISS,[1] was the outcome of a carefully controlled trial conducted by the Medical Research Council and the Nuffield Foundation.[2] The investigation was confined to early cases; and to many it seemed possible that this group, in which a high proportion of spontaneous remissions was to be expected, was not best calculated to reveal any difference between the two methods of treatment. Accordingly the Empire Rheumatism Council designed a comparison of the same two drugs in patients with disease of varying duration—selected only in so far that anatomical changes were not too advanced to preclude measurable improvement in function. A novel feature of this trial, the first results of which have now been reported,[3] was an attempt to assess the progress of changes in the radiographic appearances of the joints. Nine centres contributed patients, who were allocated centrally and at random to the two treatment groups. In the cortisone group treatment started with a total daily dose of 75 mg., and the dose was later adjusted to the smallest which would keep the patient largely free from symptoms. To avoid the dangers of high dosage it was decided that treatment with cortisone should be abandoned if symptoms could be controlled only by a daily dose as great as 100 mg. The absence of serious complications is probably due to this precaution, and to the exclusion from the trial of patients with gastric disease, mental instability, or hypertension. At the end of a year (the trial is to continue for three years in all) there was no significant difference between the two groups in functional capacity, number of joints affected, hæmoglobin value, erythrocyte-sedimentation rate, or progress of lesions demonstrated radiographically. In the cortisone group the mean sedimentation-rate was normal at the end of the first and second months (thus differing very distinctly from the aspirin cases); but the rate then rose rapidly, and from the fifth month there was no difference between the two groups, in each of which the mean rate slowly fell till the end of the year. Hæmoglobin values were higher on the average in the cortisone group at the end of six months, but after a year this difference too had disappeared. Serial radiographs, which were inspected particularly for the development or enlargement of juxta-articular erosions in the wrists and hands, gave a hint of greater deterioration in the aspirin group; but statistically the difference was not quite significant.

Thus in rheumatoid arthritis of varying duration, as in early cases (as well as in rheumatic fever [4]), salicylate or aspirin emerges from the rigours of controlled comparison in no way inferior to cortisone. The crucial question whether either drug fundamentally alters the progress of the disease remains unanswered. Ethically it would be unjustifiable to withhold all treatment from a control group of patients; but some information might be gleaned from a comparison of treatment with large amounts of aspirin and with minimal analgesic doses. Meanwhile, the evidence from this and earlier trials raises the question whether cortisone, with its acknowledged dangers, is ever indicated in rheumatoid arthritis. As regards prolonged administration in largely unselected cases, the Empire Rheumatism Council investigation (at any rate at the stage of this first annual stocktaking) gives an answer as unequivocally negative as did the previous investigation of early cases. Are there any situations, or is there any special group of cases, in which the potent effects of a short course of cortisone can be beneficial? BAYLISS [1] believes that such courses may sometimes help in reablement—an effect which is not easily proved—and in some acute febrile cases. If it could be shown that cortisone diminishes the damage to joints, which advances rapidly in some of these cases, its use during the active phase, which is often short, would certainly be correct. In severe and unrelentingly progressive cases the temptation to try cortisone is great, but there is no good evidence that it improves the outcome. The second and third years of the Empire Rheumatism Council's trial may produce different conclusions; but this seems unlikely, and clinicians will be more anxious to hear how prednisone and prednisolone have fared under similar conditions of test.

Clinical trials of this sort have become a necessary accompaniment to the introduction of new and potent drugs. The comparison of corticotrophin, cortisone, and aspirin in the treatment of rheumatic fever, sponsored by the Medical Research Council and the American Heart Association,[4] was a notable instance of international collaboration in this field. Prompted by this trial, the American Rheumatism Association considered the feasibility of a similar study in rheumatoid arthritis; but as a preliminary it undertook a retrospective analysis of the experience of several clinics with cortisone in rheumatoid arthritis—a study which necessarily did not include a control group of patients.[5] The limitations of this type of survey were recognised by its organisers, and have been analysed by MAINLAND.[6] The difficulties are exemplified by the wide range of results reported by different clinics: the proportion of satisfactory results after a year of treatment with cortisone ranged from nil to 70%. Nevertheless some useful facts were collected. The major undesirable effects in 314 patients who received more than 50 mg. of cortisone daily included pathological fractures in 5·1%, psychosis in 2·5%, peptic ulcer in 8·3%, and infection in 13·4%. In patients with psoriasis and arthritis the skin condition did not seem to be influenced by cortisone. Recognition of the direct relation of dosage to undesirable effects has led to increasing caution. At a meeting of the American Rheumatism Association last year Dr. HOWARD F. POLLEY,[7] speaking of experience at the Mayo Clinic, set the highest tolerated maintenance dose of cortisone at 25–30 mg. daily for postmenopausal women, 35–40 mg. for premenopausal women, and 40–50 mg. for men. It was pointed out at the same meeting that with doses of this order output of endogenous hydrocortisone

1. Bayliss, R. I. S. *Lancet*, 1955, ii, 1078.
2. *Brit. med. J.* 1954, i, 1223; *Ibid*, 1955, ii, 695.
3. *Ann. rheum. Dis.* 1955, **14**, 353.
4. *Circulation*, 1955, ii, 343. *Brit. med. J.* 1955, i, 555.
5. *Ann. rheum. Dis.* 1955, **14**, 325.
6. Mainland, D. *Ibid*, p. 337.
7. *Ibid*, p. 417.

may be suppressed, and be replaced by no more than the equivalent amount of exogenous hormone. In theory the only advantages to the patient would be the substitution of a regular supply of hormone for the varying output of his own glands (the maximum secretion during a twenty-four-hour period may be ten times greater than the minimum) or the very hypothetical suppression of a harmful adrenocortical hormone. Before adopting a policy of "safe" maintenance therapy we must try to establish whether we are, in fact, using an expensive drug to any good purpose.

Clean Meat?

THE importance of meat as a source of food-poisoning, to which we lately called attention,[1] is not peculiar to this country or this age. As long ago as 1880 BOLLINGER collected details of 17 outbreaks of food-poisoning due to meat and affecting 2400 people.[2] In 1888 GAERTNER [3] described the organism which for so long bore his name and which we now call *Salmonella enteritidis*: he recovered it from the carcass of a cow, and, post mortem, from a man who had eaten the meat. The Aertrycke bacillus (now *S. typhimurium*) owed its name to the Belgian village where it was first detected by DE NOBELE [4] under like circumstances. Though we owe much to our own Durham and the reports of the Local Government Board, it was the German bacteriologists who paid most attention to food-poisoning in those early days. One reason for this was the national habit of eating undercooked meat, and one result, a system of meat inspection which should be the envy of every country.

The report of a joint committee of the Food and Agriculture Organisation and the World Health Organisation emphasises that our most valuable source of protein has its dangers.[5] The list of meat-borne diseases is intimidating, though some of them—brucellosis, tuberculosis, and erysipeloid, for example—threaten the butcher rather than his customers. (In some parts of the United States undulant fever has become principally an occupational disease of slaughterers.[6]) Even if the problem is limited to salmonella infections alone, the difficulties in offering the housewife food free from all possible risk are very considerable. In this country at any rate, bovine infection with *S. typhimurium* and *S. dublin* is not uncommon, and diagnosis, in life or after death, must depend upon a bacteriological examination which is seldom made. Conditions in the best-run abattoir are seldom such that contamination of clean meat by infected viscera or fæces is impossible. Even in this enlightened land the design and practice of too many abattoirs are archaic: of conditions in some of our Colonies the less said the better. Nevertheless experience and the statistics of the Public Health Laboratory Service shows that "a cut off the joint" is seldom the origin of salmonella infection. The commonest source is processed meat in one of its various forms. A list which did not claim to be comprehensive mentioned 61 varieties cooked before sale and another 4 (including the domestic sausage) which are sold raw in this country.[7] Not even the makers would claim that the meat which goes into these succulent foodstuffs is the same as that on the butcher's slab. These dishes are in fact a sensible way of using up all those parts of the animals' anatomy which are in their pristine state repellant to our squeamish tastes. But liver, spleen, and lymph-glands can be reservoirs of bacterial infection, and an inside view of the trade will reveal other components, both native and imported, sufficiently bizarre to encourage further inquiry.

If all this is true of Great Britain it is likely that the practice of hygiene is even more difficult in countries where meat is preferred when it has been ripened by decay or where a chronic shortage of protein gives every scrap of a carcass added value. This report does not concern itself with the details of practice but lays down general principles which are hard to fault. Two new developments are mentioned which have not had much attention here. There is probably little cruelty in a well-run abattoir, but the preliminary stunning of pigs with carbon dioxide points to further improvement in this direction. Some process by which meat might be sterilised cheaply and without danger of taint might well remove many troubles in the meat trade. Some trials of irradiation for this purpose are so promising that the subject is recommended for further study by the committee. Their report is said to be the first of a series, and we look forward to its successors.

Chest Radiography in Pneumoconiosis

To certify a miner as having pneumoconiosis is a grave responsibility: apart from his natural dread of the disease, he and his family will inevitably suffer hardship, and the mining industry may lose a skilled worker who is badly needed. According to the Ministry of National Insurance [1] the diagnosis of pneumoconiosis depends primarily on radiography; but how reliable is this?

On the results of a survey made in 1950–51 in four Durham coalmines,[2 3] Professor BROWNE and his associates now question the value of radiography in assessing pneumoconiosis. Of the 5118 men examined (89% of all those working in the four coalmines) 30–35% showed radiological evidence of the disease, and for men who had worked at the coalface for twenty years or more the figure was 65%. A little over 2% of all men had radiological evidence of complicated pneumoconiosis (progressive massive fibrosis). When allowance is made for Durham miners going to the coalface ten years earlier than their Welsh colleagues, these figures agree closely with those recorded by the M.R.C. workers for four coalmines in South Wales, in the Rhondda Fach.[4]

But in the Durham survey NEWELL and BROWNE [2] recognised, in uncomplicated pneumoconiosis, no association between symptoms and radiological category: a man with symptoms might or might not have had an abnormal radiograph. Hence they believe that "many men who have no symptoms may be classified as having radiological pneumoconiosis, while many who are disabled cannot be so classified and compensated, as there is no abnormality in their radiographs"; and they point out that dyspnœa, cough, and spit, which are disabling to the patient, cannot be detected radiologically. Their general conclusion is that whereas radiological category is influenced by the degree of dust exposure, the disability of coalface workers is a function of age. They suggest that, if their findings are supported by those in other coalfields, the compensating machinery for miners' pneumoconiosis should be reconsidered:

> "Disability (as measured by inability to continue the present job) in a coalface worker might well entitle a man to compensation. Let the chest radiograph be boldly omitted. At present many men are being refused compensation because their chest radiographs are normal, even though they are grossly disabled, and vice versa."

MCCALLUM and BROWNE [3] hold that, in the interests of both the men and the coalmining industry, it would be

1. *Lancet*, 1956, i. 87.
2. Edelmann, R., Mohler, J. R., Eichhorn, A. Textbook of Meat Hygiene. London, 1925; p. 383.
3. Gaertner, A. *KorrespBl. ärztl. Thüringen.* 1888.
4. de Nobele. *Ann. Soc. Méd. Gand.* 1899.
5. *Tech. Rep. Wld Hlth Org.* 1955, no. 99.
6. Hendricks, S. L. *Amer. J. publ. Hlth*, 1955, **45**, 1282.
7. Report of the Manufactured Meat Products Working Party. H.M. Stationery Office, 1950.

1. Notes on the Diagnosis of Occupational Diseases. Ministry of National Insurance. 1950. H.M. Stationery Office.
2. Newell, D J., Browne, R. C. *J. Fac. Radiol., Lond.* 1955, **7**, 20.
3. McCallum, R. I., Browne, R. C. *Brit. J. industr. Med.* 1955, **12**, 279.
4. Cochrane, A. L., Cox, J. G., Jarman, T. F. *Brit. med. J.* 1952, ii, 843.

better to allow pneumoconiotics to continue to work at the coalface if they want to, while keeping them under medical supervision. Every effort should of course be made to get rid of dust from the air in the mines.

In a Medical Research Council report [5] just published, GILSON and HUGH-JONES record their investigations at the M.R.C. Pneumoconiosis Research Unit in South Wales. Among their important results (to which we hope to refer in more detail in a later issue), they find that "it is a man's age rather than the radiological degree of simple pneumoconiosis which is important in predicting his disability." Miners with no radiological pneumoconiosis were, on the average, as breathless for their age as men with simple pneumoconiosis and more breathless than non-miners, especially in the elderly; "this suggests," GILSON and HUGH-JONES add, "that such miners might logically receive benefit for their disability."

Annotations

TREATMENT OF EPILEPSY WITH ACETAZOLAMIDE

IN a recent annotation [6] we discussed the effect of carbonic-anhydrase inhibition on electrically induced convulsions in mice [7]. Lombroso and his colleagues from Harvard now describe [8] their experience with acetazolamide given to 126 young epileptics during the past three years. Results were good or excellent in half their patients, and improvement was maintained for from three to thirty-six months. No patients deteriorated when acetazolamide was added to or substituted for previous treatment, and in a quarter of all cases the seizures were completely abolished. These results were achieved with doses of about 500 mg. or 750 mg. daily. Side-effects were not troublesome and there were no serious toxic effects. No striking difference was found in the response of different types of epilepsy, though results were rather better in patients with mixed types of seizures (usually a combination of grand mal and petit mal) than in those with petit mal alone, or with other seizure patterns alone. Electroencephalographic analysis of the response indicated that results were best in patients who showed much spike-wave activity, especially when hyperpnoea induced slowing of the waves and profuse spike wave discharges. In such patients acetazolamide sometimes restored the E.E.G. pattern to normal.

In a letter in our issue of Feb. 25 Professor Golla and Dr. Sessions Hodge reported that they had added acetazolamide to the treatment of 70 patients suffering from petit mal. The seizures were completely abolished in 25 of these patients during the first month of therapy, and only 2 of the 70 failed to show some improvement. Professor Golla and Dr. Sessions Hodge have not so far assessed the action of acetazolamide in major epilepsy.

Like other drugs used in the treatment of epilepsy acetazolamide has apparently caused agranulocytosis [9]; and thrombocytopenia [10] and renal lesions of sulphonamide type [11] have also been reported. There may be other serious disadvantages in the prolonged inhibition of an enzyme so widely distributed as carbonic anyhdrase. But that does not mean that acetazolamide may not prove to be an important addition to the treatment of epilepsy.

THE CHALLENGE OF MENTAL ILLNESS

THE Ford Foundation has given £75,000 to be spent over the next six years by the Mental Health Research Fund, which was founded four years ago by a group who believe that mental health and mental illness have not had the share of research which their immense importance demands. [12] The tasks the Fund has set itself are to establish research fellowships, to encourage coöperation between workers in different fields, to support specific investigations, and to assist exchange of information; and the cost of the commitments it is now contemplating will be not less than £23,000. At its annual meeting on March 6 the chairman, Mr. Ian Henderson, pointed out that through this Fund the friends and relatives of the mentally ill can give effective expression to their desire to help. Sir Russell Brain spoke of the achievements of other voluntary agencies, such as the British Empire Cancer Campaign and the Empire Rheumatism Council, and said that these unofficial sevices are needed today every bit as much as in the past, when they so often led the way. No money could be better spent, said Dr. William Sargant, than that spent on the relief of intolerable mental suffering.

RESTRICTION OF ANTIBIOTICS

ON Jan. 28 and March 3 we discussed measures taken by the New Zealand government to conserve erythromycin for use only in infections resistant to all other antibiotics. We said that from Feb. 1 New Zealand doctors would be able to get erythromycin only through hospitals and only for the treatment of diseases which did not respond to other remedies. This restriction applies to erythromycin supplied at the cost of the Social Security Fund, but not to other prescriptions for the drug. We are indebted to Mr. J. R. Hanan, New Zealand minister of health, for pointing out to us that the restriction is more limited than we supposed from the reports reaching us. This important decision was, however, based on the considerations we set out in our leading article of Jan. 28; and, in reply to a point we raised, Mr. Hanan adds that New Zealand hospitals have in fact been advised to go very carefully in their own use of erythromycin.

CERVICAL LUNG HERNIA

HERNIATION of the lung is rare: in 1946 Maurer and Blades [1] found 185 cases on record, and they were able to add only a few more. The site of the hernia is variable, but most recent reports [2–11] have described cervical hernias; and Fenichel and Epstein [12] now suggest that this variety is commoner than the small number of reports would suggest, for in a short period they saw 19 patients with this condition. Sometimes trauma or developmental defects have clearly been responsible, but Fenichel and Epstein consider that in their series the important cause was the strain of frequent coughing. Their patients were elderly and they had all had coughs for years, except 4 who, however, had emphysema like most of the others. In 5 cases, there was a persistent, soft, resonant, supraclavicular swelling which distended on coughing; in the others, the bulging appeared only on coughing. Usually the herniation was bilateral.

The apex of the lung normally rises 2–5 cm. above the level of the first costal cartilage, and expansion upwards and medially is limited by the pleura and the deep cervical fascia (Sibson's fascia). During the expiratory phase of coughing, when the contraction of the thoracic and abdominal muscles tends to thrust the apex of the lung further through the thoracic inlet, the pressure on Sibson's fascia must be considerable, and Fenichel and Epstein believe that in some patients with chronic cough the fascia may become so stretched and lax that the lung can bulge into the neck. They think that emphysema may be another cause, because it tends to produce an upward tilting of the first rib with consequent widening of the thoracic inlet. Supraclavicular bulging in emphysematous patients is probably well recognised, but it is not usually described as lung herniation. In diagnosis, Fenichel and Epstein found that a lateral radiograph of the neck was of value. In normal short-necked people with heavy chests the cupola of the lung could not usually be seen, but it was visible in long lean individuals and also in patients with lung hernia. In normal subjects, however, even when the apex of the lung could be seen in the neck at

5. Gilson, J. C., Hugh-Jones, P. *Spec. Rep. Ser. med. Res. Coun., Lond.* 1955, no. 290.
6. See *Lancet*, Feb. 11, 1956, p.273.
7. Millichap, J. G., Woodbury, D. M., Goodman, L.S. *J. Pharmacol.* 1955, **115**, 251.
8. Lombroso, L. T., Davidson, D. T., Grossi-Bianchi, M. L. *J. Amer. med. Ass.* 1956, **157**, 268.
9. Pearson, J. R., Binder, C. I., Neber, J. *Ibid*, 1955, **157**, 339.
10. Reisner, E. H., jun., Morgan, M. C. *Ibid*, 1956, **160**, 206.
11. Glushien, A. S., Fisher, E. R. *Ibid*, p. 204.
12. The Fund's address is: 39, Queen Anne Street, London, W.1.

1. Maurer, E., Blades, B. *J. thorac. Surg.* 1946, **15**, 77.
2. Pine, I., Morganstern, P. *Amer. Rev. Tubere.* 1948, **57**, 580.
3. Meakins, J. F., Wyatt, C. J., Aronovitch, M. *Canad. med. Ass. J.* 1948, **58**, 33.
4. Mann, L. S., Olson, K. C., Walls, W. S. *Surgery*, 1949, **25**, 127.
5. Van Wezel, N. *J. Amer. med. Ass.* 1950, **142**, 804.
6. Bass, H. E. *N.Y. St. J. Med.* 1950, **50**, 1967.
7. Palazzo, W. L., Garrett, T. A. *Radiology*, 1951, **56**, 575.
8. Freitas, E. L., Vonfraenkel, P. H. *U.S. Forces med. J.* 1951, **2**, 213.
9. Rheinhardt, H. A., Hermel, M. B. *Radiology*, 1951, **57**, 204.
10. Falliers, C. J. *J. Pediat.* 1955, **46**, 332.
11. Rigden, B. G. *Lancet*, 1955, ii, 803.
12. Fenichel, N. M., Epstein, B. S. *Arch. intern. Med.* 1955, **96**, 747.

rest, its position did not alter on deep inspiration followed by the Valsalva manœuvre, whereas in patients with lung hernia this caused the apex to bulge upwards. Although some of Fenichel and Epstein's patients were alarmed at the appearance of supraclavicular swelling, they suffered no inconvenience and, as is usually the case, no treatment was necessary. Exceptionally, however, the condition has given rise to severe pain,[1] and Rigden [11] described a patient in whom surgical repair of an intermittent cervical hernia had to be undertaken partly because of local discomfort, but mainly because protrusion of the lung was accompanied by throbbing in the head and neck.

MORBIDITY AFTER PROSTATECTOMY

SINCE surgical treatment was first used for benign enlargement of the prostate, it has undergone many modifications. The primary aim has always been to ensure permanent relief from the threatened dangers of urinary obstruction and to do so by an operation of low mortality. This objective can now be attained by suitable selection of cases and careful attention to technique, and the problem of reducing postoperative discomfort and morbidity now commands greater attention. In a symposium on morbidity following prostatectomy held in Melbourne last year, a number of leading Australian urologists recorded their experience with particular operations. Basically all agreed on the need for complete removal of obstructing tissue, the control of hæmorrhage, and avoidance of infection; and when these conditions had been fulfilled, methods dispensing with suprapubic drainage and its inconvenience could be adopted with advantage.

Discussing the transvesical operation devised by S. H. Harris, R. G. S. Harris[1] stressed the importance of "clean intra-capsular removal" of the adenomatous tissue. Positive hæmostasis by suture and plastic reconstruction of the cavity went far to prevent postoperative sequelæ; and urinary fistula and incontinence were said to be rare. Mortensen[2] described transurethral prostatectomy and dealt with the untoward events which followed any form of prostatectomy and also with those specifically related to the operation of resection. The latter included urethral stricture, hæmolysis (from leakage of irrigating fluid into open venous sinuses), and persistent postoperative infection; but they were uncommon in expert hands. Contrasting the technique of retropubic prostatectomy with the transvesical operation, Kirkland[3] made some interesting comments on the comparative freedom from risk in opening up the prevesical space and interfering with the prostatic venous plexus. The particular Australian bogy of osteitis pubis in relation to the retropubic operation was largely discounted at the symposium; and the short period of catheter drainage required after this operation was regarded as a contribution to the early restoration of urinary continence.

It is hard to draw any very significant comparative conclusions from the views of these Australian surgeons. As Caine[4] pointed out in a recent review of the late results and sequelæ of prostatectomy, the surgeon of today has a choice of many technical procedures, all of them well tried and each with its distinguished advocates. Each has produced good results in the hands of those familiar with it, and the patient with prostatic trouble may now reasonably expect both relief from his symptoms and freedom from postoperative distress.

MORPHINE-LIKE DRUGS

FEW drugs have been more closely studied from the point of view of the relationship between molecular structure and pharmacological activity than morphine. When the structural formula of morphine was established, many simpler structures could be identified within its complex molecule. For many years potent analgesics were sought by synthesising phenanthrene derivatives; but the results were very disappointing. The discovery of pethidine's analgesic properties was a big advance which focussed attention on the resemblance of this apparently unrelated compound to morphine. Other types of compound were synthesised, including methadone, isomethadone, and the dithienylbutenylamines. In all, many hundreds of synthetic chemicals were prepared and tested for analgesic activity. All of these bore some structural relation to the natural prototype, morphine. Braenden et al.[5] have lately collected and summarised a mass of detail about the way in which alterations in the chemical constitution of several groups of compounds related to morphine modifies their analgesic potency. This valuable work shows that it is now possible to point to certain chemical features which are shared by drugs with true morphine-like analgesic activity. This activity is associated with a tertiary nitrogen atom carrying a methyl group or another group which must be of low molecular weight. There is a central quaternary carbon atom, none of the valencies of which are connected with hydrogen; and this carbon atom bears on one valency either a phenyl group or a group which is isosteric with phenyl. Maximum analgesic activity seems to be achieved when the tertiary nitrogen atom is separated from the quaternary carbon atom by a chain of two carbon atoms. Yet some compounds with these very features have no morphine-like properties and it is still not possible to predict with confidence that a particular chemical configuration will act in this way. The picture is obviously incomplete, and it becomes a very preliminary sketch when we realise that, though in time we may be able to identify analgesic properties in a molecule from an examination of its chemical and physicochemical properties, we still know little or nothing about the receptors with which it combines and reacts.

INTERSTITIAL MYOCARDITIS

INTERSTITIAL non-rheumatic non-suppurative myocarditis was well known to pathologists of the 19th century. It was considered to be a complication of bacterial infections, usually typhoid fever and streptococcal infections. In 1899 Fiedler [1] considered that the isolated form of acute interstitial myocarditis was a special disease, to which his name is now often attached. Saphir [2], after a thorough examination of his own material and of the literature, concluded that isolated myocarditis was not a specific disease but the outcome of various infective and toxic processes.

Because there are seldom any characteristic gross anatomical findings, the condition may have been often overlooked at necropsy. When such changes are present, they consist of enlargement of the heart due to eccentric hypertrophy or to dilatation alone, mottling of the myocardium by pale purple or pinkish-grey spots, and occasional red spots of hæmorrhage. But usually only the histological examination reveals the real nature of the disease. The characteristic finding is interstitial cellular infiltration, with predominance of round cells. The infiltration is more often focal than diffuse. The clinical picture was well described by Williams et al. [3], who studied 14 patients of ages ranging from twelve days to five years, and by van Creveld et al. [4], who recorded 11 examples of this condition in childhood. There is acute circulatory and respiratory distress (without significant fever), cyanosis, extreme tachycardia with a very small, weak, thready pulse, no murmurs, sometimes gallop rhythm, and usually enlargement of the heart. The electrocardiogram shows a low voltage RST segment, flat or inverted T wave, and supraventricular tachycardia. The disease may be confused with glycogen storage disease of the heart, with one form of fibroelastosis, and with the disease of the coronary arteries of the newborn that is known by various names (that recently proposed by Zischka [5] is "arteriopathia calcificans infantum").

Important progress in the understanding of these forms of myocarditis came from experiments which show the close relation between interstitial myocarditis on the one hand and anoxæmia plus virus infection on the other. This work has been reviewed by Pearce [6]. An accidental finding was made when blood was taken from rabbits by cardiac aspiration a few minutes before the animals were inoculated with virus III. The injection of virus led to severe interstitial myocarditis with typical intranuclear inclusion bodies and chromatin margination. In later experiments, rabbits were prepared by intravenous injection of pitressin or gum acacia before inoculation with a virus such as vaccinia, pseudorabies, myxoma, and two strains of fibroma virus. A high proportion of these animals had cardiac lesions, particularly interstitial myocarditis. Similar results followed when rabbits inoculated with a virus were later given an intravenous injection of barium chloride, adrenaline, pitressin, or gum acacia, all of which have the effect of reducing the oxygen supply to the tissues. A lower but still

1. Harris, R. G. S. *Med. J. Aust.* 1955, ii, 917.
2. Mortensen, H. *Ibid*, p. 919.
3. Kirkland, K. *Ibid*, p. 921.
4. Caine, M. *Brit. J. Urol.* 1954, **26**, 205.
5. Braenden, B. J., Eddy, N. B., Halbach, H. *Bull World Hlth. Org.* 1955, **23**, 937.

1. Quoted by Saphir (ref. 2).
2. Saphir, O. *Arch. Path.* 1941, **32**, 1000; *Ibid*, 1942, **33**, 88.
3. Williams, H., O'Reilly, R. N., Williams, A. *Arch. Dis. Child.* 1953, **28**, 271.
4. van Creveld, S., de Groot, J. W. C., Hartog, H. A., Lie Sing Kiem. *Ann. Paediat.* 1954, **183**, 193.
5. Zischka, W. *Beitr. path. Anat.* 1955, **115**, 586.
6. Pearce, J. M. *In* the Pathogenesis and Pathology of Viral Disease. New York, 1950.

considerable, proportion of myocarditis was found when inoculated rabbits were placed in a bell jar in which part of the oxygen was replaced by nitrogen.

It was concluded that anoxæmia predisposes to myocardial infection by certain viruses. This view is supported by the distribution of lesions in relation to the distribution of the coronary arteries. In man interstitial myocarditis has often been noted in poliomyelitis. Teloh[7] confirmed previous observations[8] that the prevalence of myocarditis varied considerably in different poliomyelitis epidemics suggesting that some strains of the virus were more prone to attack the heart than others. Of special interest are the cases in which acute interstitial myocarditis was the only or main manifestation of a virus infection, as illustrated in a recent report from Johannesburg[9]. While they were in a maternity home, or shortly after they had left it, 10 infants became severely ill and 6 died. The features of the illness were tachycardia, cyanosis, fever, tachypnœa, and toxæmia. Some of the babies had a relapsing type of fever like that seen in Bornholm disease. Necropsy, including microscopical examination, was carried out in 3 cases. Focal interstitial myocarditis was found in all 3, and in 1 case there was also a focus of encephalitis. Thorough virus investigations, including inoculation of young mice, were performed in 4 patients, of whom 1 recovered. In all 4, infection with Coxsackie virus (group B) was proved.

Special Articles

CLAIM FOR BETTERMENT

ON March 7 the Negotiating Committee, which is to negotiate the claim for increased betterment for general practitioners and hospital medical staffs, gave preliminary consideration to the preparation of the joint claim and authorised the use of the services of counsel in the drafting of the statement of claim. It decided that the representation of the public-health medical service on the committee should be increased by including two additional members to be nominated by the Public Health Committee of the British Medical Association. The present membership is:

Prof. Ian Aird, F.R.C.S., Sir Russell Brain, F.R.C.P., Sir Harold Boldero, F.R.C.P., Dr. J. D. S Cameron, Dr. T. Rowland Hill, Mr Charles Read, F.R.C.O.G., and Mr F. Holmes Sellers, F.R.C.S., (representing the Joint Consultants Committee); Dr. A. Beauchamp, Dr. Guy Dain, Dr. A. B. Davies, Dr. F. Gray, Dr. Talbot Rogers, Dr. C. J. Swanson, and Dr. S. Wand (representing the General Medical Services Committee); and Dr. J. B. Tilley (representing the Public Health Committee of the B.M.A.). Sir Russell Brain and Dr. Talbot Rogers preside at alternate meetings.]

Those present included Mr. R. G. D. Allen, professor of statistics in the University of London, and Mr. N. Leigh Taylor, solicitor to the B.M.A.

GAMMA-GLOBULIN

GAMMA-GLOBULIN, prepared from pooled plasma from healthy adults, is distributed through laboratories of the Public Health Laboratory Service for the protection of susceptible contacts of measles, rubella, and poliomyelitis, as follows (see *Mon. Bull. Minist. Hlth Lab. Serv.* 1956, **15**, 27):

Measles.—(1) For control of hospital and institutional outbreaks. (2) For persons with intercurrent illnesses or living in a poor environment for whom measles would be dangerous. (3) For attenuation in children under 3 years of age.

Rubella.—For women exposed to infection in the first four months of pregnancy.

Poliomyelitis.—(1) For nurses and medical students closely associated with the care of early cases who have not been in known contact with the infection. (2) For babies in a hospital or maternity home exposed to infection soon after birth. (3) For children in a hospital ward where a case has developed—especially children who have recently undergone tonsillectomy.

In addition gamma-globulin prepared from the blood of persons recently vaccinated against smallpox is held for the treatment of generalised vaccinia or accidental vaccinial infections endangering the eye, and, in special circumstances, for the protection of unvaccinated smallpox contacts.

7. Teloh, H. A. *Arch. Path.* 1953, **55**, 408.
8. Saphir, O., Wile, S. A. *Amer. J. med. Sci.* 1942, **203**, 781; Ludden T. E., Edwards, J. E. *Amer. J. Path.* 1949, **25**, 357; Jungeblut, C. W., Steenberg, E. *Arch. Path.* 1950, **49**, 574.
9. Javett, S. N., Heymann, S., Mundel, B., Pepler, W. J., Lurie, H. I., Gear, J., Measroch, V., Kirsch, Z. *J. Pediat.* 1956, **48**, 1.

The Widdicombe File

XXXI—TOO LITTLE—AND LATE

DEAR HAWKE,

Mrs. Neal has just gone out again. This time she stayed in hospital for over two weeks, she had seven pints of blood, and her hæmoglobin rose from 34% to 65%.

You may have good cause for satisfaction. When somebody has had forty-three pints of blood, the uneventful transfusion of a further seven is an achievement on which the pathologist can justly look with pride. Thanks to you and your colleagues, a blood-transfusion is probably the simplest and safest life-saving operation in the whole of medicine. The meticulous care taken in the collecting, and in your grouping and matching, is almost enough to eliminate hazards at your end; when the occasional mishap does occur, we all know that we must first look for the cause in ourselves. Even the blood of Mrs. Neal, with its antibodies and its hyperglobulins, is a poor challenge to your resourcefulness. Your modest labels reading "Compatible Washed Cells" do not deceive me as to the vast amount of work they conceal. Mrs. Neal has had her sixteenth transfusion without batting an eyelid.

Yes, you may well be satisfied. But, as her physician, I am not. Seven pints is a lot of blood; but 65% is a long way from 100%, and two weeks is a long time.

I have worked out that, for her sixteen transfusions, Mrs. Neal has spent a total of close on five months in hospital. Members of the committee might well throw up their hands in horror and weep over the £19-odd that it costs to maintain one bed in our hospital for one week; but far more important considerations are at stake. Often we have been very short of beds and have had to refuse admissions because Mrs. Neal was taking up a bed. For a time, we tried taking her in when the blood was ready, but you never sent enough and she still had to wait another week for the second instalment. We tried giving her a few surreptitious bottles from our emergency stock, but you found out and made a fuss. We persuaded her relations to become donors, but it has made no difference.

Of course, Mrs. Neal is no less anxious to get out of hospital than we are to expedite her return home. Last summer we tried to top her up for her summer holiday, but you could not spare the blood in time. We had to keep her in over Christmas for the same reason. Your explanation for the delay is always the same. Group-O Rh-negative blood is precious and the demand is heavy. The need is more urgent elsewhere. Sometimes there is an exchange transfusion for rhesus incompatibility, and this must come first.

•

So you see, this problem goes deeper and deeper, until it reaches our fundamental medical and other principles. Is the life of this patient, whose aplastic marrow renders her dependent on the blood of others, any more or any less important than that of a jaundiced newborn babe? Are we to set ourselves up in judgment and say: "This life is worth preserving but that one is not"?

Mrs. Neal is a simple soul. She does not know what is wrong with her, and would not understand if we told her. She has no special gifts and her education leaves much to be desired. She has no hobbies and would be hard-pressed to say what she does with herself all day. At 60, she feels she has earned a rest and therefore lets the younger members of the family attend to the work. Not that she appreciates her family any more than she appreciates all the medical attention she is having. It would certainly never occur to her that fifty donors have given their blood freely to keep her alive for a year. Instead, she nurses a deep resentment against all of us because we cannot cure her at less inconvenience to herself. Her simple mind cannot understand why she has to have transfusions when her friends and neighbours are revived by a few iron or vitamin pills.

Many would say, here is a worthless life if ever. Society could suffer no loss by her untimely end. Her relations may well feel relieved of their burden. A hospital bed would be freed.

One can argue that when a man is struggling in the final stages of some fatal disease it is kindness to let him die peacefully. There comes a time when penicillin may thoughtlessly deprive some age-wracked body of its last friend. It is as well if the infant imbecile need never open its eyes upon a cruel world.

In all this I confess my guilt; but I cannot place Mrs. Neal in the same category. Are you going to abandon someone who openly demands life as her birthright? Are you, who hold the elixir of life, prepared to accept this terrible responsibility?

There can be few of us who would not shrink from such a task. When Bernard Shaw wrote of *The Doctor's Dilemma* he could scarcely have guessed the reality of the plot. You will remember, the choice between the deserving colleague and the undeserving genius was not made lightly. Your choice, made from the meagre data on a slip of paper, is all the harder. I do not blame you for making a compromise. What can be simpler than to share the elixir?

For my part I've always thought it my duty to put relief of suffering before everything else—even before the saving of life. It comforts me to know that, however incurable the disease, there is always something I can do. But for once I am powerless.

Anæmia is not usually a distressing complaint. Mrs. Neal, however, is elderly and her arteries are hard and narrow. Her lungs are emphysematous, her heart is weak, her eyesight is poor. Her gastric mucous membrane is atrophic, and her digestion is not good. When her hæmoglobin falls below 60% she begins to get angina, breathlessness, and cramp. She loses appetite and weight, and even medicine gives her indigestion. As her legs gradually swell, so her body slows and her mind becomes dull. Finally, her hæmoglobin 35%, she is reduced to the picture of abject misery that I know so well. She comes to us for help. And what do we do? We transfuse her till her hæmoglobin is 65%; and five days later the whole wretched story begins all over again. You have made your compromise.

I admit we are no nearer to a solution, although I hope I have convinced you that, of the possibilities, at least two are unacceptable. Surely there must be an answer to the problem that does not clash with one's ideals? I should willingly do anything in my power to help you find it.

Forgive me for taking you from your microscope.

Yours ever,
H. B.

Letters to the Editor

Vaccinia versus Poliomyelitis.—Colonel Morhouse (Feb. 25) says that in the United States, though vaccination against smallpox has usually taken place by the age of 6–7, children of that age are regarded as particularly liable to contract poliomyelitis. Can he give us an idea of what proportion of these vaccinations are performed in infancy? If, as in this country, vaccination is commonly performed at 3–6 months, it could not be expected to give full protection against poliomyelitis at school age.

My own data suggest that, though smallpox vaccination several years previously may not prevent poliomyelitis, it may modify the illness so that paralysis is avoided. In 1955 in this area 35 children aged 4–7 years contracted poliomyelitis (paralytic or non-paralytic). Of the 25 in whom there was no paralysis after the illness, 19 had been vaccinated in infancy, while 6 had never been vaccinated. Of the 10 with paralysis, 4 had been vaccinated in infancy while 6 had never been vaccinated; and it is noteworthy that in all 4 vaccinated children paralysis was slight, whereas in all 6 unvaccinated children it was severe.

Since in my area about half the children are vaccinated against smallpox, it may be asked why, of 25 children with non-paralytic poliomyelitis, as many as 19 should prove to be vaccinated. A possible explanation is that children vaccinated in infancy are for several years so fully protected against poliomyelitis that they do not contract the disease in any form and therefore do not acquire any specific immunity to it. Hence, compared with children who have never been protected by smallpox vaccination, they may be more liable to contract poliomyelitis at school age—though the waning effect of the vaccination may still suffice to save them from paralysis.—D. P. MACIVER, M.D. (Weybridge, Surrey).

Leptospirosis.—As a veterinary surgeon I see many cases of leptospirosis in the dog, mostly due to *Leptospira canicola*, more infrequently to *L. icterohæmorrhagiæ*. My experience is perhaps relevant to the correspondence on the value of penicillin in the treatment of the disease in man (Feb. 11 and 18).

I find that penicillin causes temporary remission of symptoms, lasting for about 36–48 hours, followed by relapse. Dark-ground examination for the causal organism is often positive after several days' administration of penicillin in high doses. I am inclined to think that acute cases responding in some degree to penicillin become chronic, usually showing eventual nephritis with uræmia; a further acute attack is not uncommon. Administration of streptomycin and oxytetracycline concurrently produces very satisfactory, permanent results with gratifying speed.

Leptospirosis in the dog is far from uncommon, as many of my colleagues have found to their cost. It is surprising that more cases do not appear among those devoted to dogs at close quarters—children in particular. I make a point of handling suspect urine with care.—R. T. DAWSON, M.R.C.V.S. (Ashington, Northumberland.)

Mass Radiography.—I have read with interest and no little amusement Dr. Brailsford's letter (Feb. 25). So far from being "the most serious" objection to mass radiography, I think it will be a great advantage if this method "leads to students being taught that active progressive tuberculosis can be present without signs or symptoms." This a hard fact which we, in the chest service, have all learnt by experience; and I could only wish that it had been emphasised when I was a student.—G. I. REES-JONES, M.R.C.S. director, mass radiography units 7B and 7F. (Oakwood Hospital, Maidstone.)

Production of Codeine.—I am glad Dr. Hamilton (March 10) agrees with me that the codeine in tab. codein. co. does not enhance the analgesic effect; but surely if his so-called new drug, *n*-acetyl *p*-aminophenol, is only of equal analgesic value why does he not stick to tab. codein. co. without the codeine? At present a hundred (0·5 g.) tablets of *n*-acetyl *p*-aminophenol ('Panadol') cost 10*s*. 11½*d*., which is the price of a thousand (gr. 10) aspirin tablets.

There is, however, a far more important reason why Dr. Hamilton should temper his present enthusiasm. *n*-Acetyl *p*-aminophenol is merely another way of saying *p*-hydroxy acetanilide—a word full of sinister implication which conjures up memories of 'Antifebrin', 'Daisy Powders', and deaths from agranulocytosis.

Acetanilide was excluded from the 1954 *British Pharmaceutical Codex* because of its toxicity, and Daisy powders are no longer available. It will take much to convince me that Dr. Hamilton's new hydroxylated "Daisy pill" is completely above suspicion.—EIRIAN WILLIAMS, M.R.C.P. (London Hospital, E.1.)

Streptonivicin.—May I comment on your annotation (March 3) reporting the common identity of streptonivicin ('Albamycin'), cathomycin ('Cathocin'), crystallinic acid ('Cardelmycin'), and albomycin?

H. Welch and W. W. Wright (*Antibiot. Chemother.* 1955, **5**, 670) reported the common identity of streptonivicin, cathomycin, and crystallinic acid, based inter alia on unequivocal evidence—the infra-red absorption spectra of the crystalline antibiotics. There is, however, no report that albomycin, first described by G. F. Gause and M. G. Brazhnikova (*Nov. Med. Mosk.* 1951, **23**, 3) is identical with these other three antibiotics, nor that the antibiotic strains *Streptomyces niveus* and *Actinomyces subtropicus* are identical.

Streptonivicin is a dibasic acid (H. Hoeksema et al. *J. Amer. chem. Soc.* 1956, **77**, 6710) containing C, H, O, and N only, active predominantly against gram-positive bacteria, inhibiting staphylococci at dilutions of 1/750,000 to 1/3,000,000. Streptonivicin by mouth can protect infected animals. Albomycin, on the other hand (G. F. Gause, *Brit. med. J.* 1955, ii, 1177), is a cyclic polypeptide, thought to be an "imitation" of some iron-containing respiratory enzyme in albomycin-sensitive bacteria, contains 4.16% iron, is active against gram-positive bacteria, in particular staphylococci at a dilution of 1/700,000,000, and is also active against certain gram-negative bacteria. No report on the effectiveness of oral albomycin is available, and it is likely, in common with other "polypeptide" antibiotics, not to be absorbed from the alimentary tract.

It may be added that crystallinic acid (cardelmycin) has been previously known as antibiotic PA93 of the Pfizer Laboratories (H. Wright, W. W. Wright, *Antibiot. Chemother.* 1955, **5**, 670).

A further point of difference between the two antibiotics is their colour; streptonivicin is white, whereas albomycin (presumably on account of the iron content) is red.—K. A. LEES, F.P.S. (Glaxo Laboratories Ltd., Fermentation Research Division, Sefton Park, Stoke Poges, Bucks.)

Remuneration of Doctors.—It would be interesting to know the family status of those doctors who advise restraint in the matter of salaries. To mention one financial problem alone—the fees at a public school famous for its medical affiliation amount to nearly £300 a year. Those of us with three or more children find it impossible to contemplate such an outlay, even for one child.

There is a large number of competent specialists in this country who have seen their share of war service and junior appointments, and who are making their contribution, in research and published work, to the widening of our professional frontiers. Many of these are forced to take up S.H.M.O. appointments because of the paucity of consultant vacancies. Their starting salary 12–14 years after qualifying is £1500 a year with an increment of £50.

Could our more fortunate colleagues tell us whose children are entitled to these educational facilities if not our own?—M.D., M.R.C.P.

Obituary

Professor SAMSON WRIGHT

For 30 of his 57 years, Samson Wright's name was identified with his *Applied Physiology*, and up to the day of his death last Sunday he was working on its 10th edition. This famous book, which is said to be as much read in America as here, arose out of the courses for the primary F.R.C.S. examination held at Middlesex Hospital where Wright had become assistant to the late Prof. Swale Vincent soon after graduating M.B. with the gold medal in 1922, and where (after an interlude at King's College) he has been Astor professor of physiology since 1930. In person and with the pen, he was a fine expositor, and a teacher who increased his pupils' wish to learn. One reason for this was that his interest in medicine was by no means confined to his laboratory, and his interest in life by no means confined to medicine. Deeply concerned by the distress of the Jews in Europe under Nazi régimes, he made himself a powerful helper and champion of our German and Austrian colleagues who escaped to this country; and latterly he has been one of the most useful British friends of the Hebrew University of Jerusalem, where a laboratory has been named after him. If often critical, he was direct, friendly, and sincere. Few men of our generation have taught so many so much and so well.

Surgeon Captain W. I. GERRARD

Captain Gerrard, who died at his Aberdeenshire home on March 7, formerly held the chair of medicine at Hong-Kong. After graduating at Aberdeen in 1909 he joined the medical inspectorate of schools. During the 1914–18 war he served with the R.N.V.R. and he afterwards joined the R.N. Medical Service. On retiring from the Navy he was appointed professor of medicine at Hong-Kong and physician to the government civil hospital. He was elected F.R.C.P. in 1936, and was appointed O.B.E. For his services in the Navy during the late war he was promoted C.B.E.

News

On March 7 the Confederation of Health Service Employees asked the 10,000 nursing staff in 33 mental hospitals who are unofficially banning overtime work to abandon their action (*Times*, March 8). If the negotiations on salary and conditions of work have not progressed satisfactorily the confederation will impose an official ban on May 1.

Sir Ernest Finch has been appointed Hunterian orator of the Royal College of Surgeons of England for 1957. Mr. R. H. Franklin and Mr. Clifford Jones have been admitted to the court of examiners of the college: and Dr. Ronald Woolmer, reader in anæsthetics at Bristol University, has been appointed director of the department of anæsthetics. A diploma of fellowship has been granted to J. Sunderman.

The National Institute of Industrial Psychology has awarded the Vernon prize for 1956 to Mr. J. S. Weiner, PH.D., honorary assistant director of the Medical Research Council unit at Oxford on climate and working efficiency.

Sir Stewart Duke-Elder will give the Thomas Young lecture on Thursday, April 12, at 6 P.M. at St. George's Hospital, London, S.W.1. on the Eyes of Invertebrates.

Dr. R. H. M. Stewart has been appointed senior administrative medical officer to the Newcastle Regional Hospital Board.

Dr. A. H. Douthwaite will give the Croonian lectures to the Royal College of Physicians of London on Tuesday and Thursday, May 1 and 3, at 5 P.M., on Pitfalls in Medicine.

On March 2, Mr. R. H. Turton, the Minister of Health, opened a new villa at Fulbourn Hospital, Cambridge. The villa, which is to be used as a social therapy unit, will accommodate 40 women patients. It contains wards, recreation rooms, a dining-room with tables for four, and a fully equipped kitchen.

Appointments

BALME, H. W., M.D. Camb., M.R.C.P.: asst. physician, St. Bartholomew's Hospital, London.
CREERY, R. D. G., M.D. Belf., M.R.C.P., D.C.H.: consultant paediatrician, South Shields H.M.C.
HARTLEY, MARY J., M.B. Leeds, F.F.A.R.C.S., D.A.: part-time consultant anæsthetist, Sheffield No. 1 H.M.C. group.
HAYES, BERNARD, M.B. Durh., D.A.: asst. anæsthetist, Blackpool and Fylde Hospitals.
HOYLE, THELMA B., M.B. Manc., D.A.: asst. anæsthetist, North Manchester hospitals and Booth Hall Hospital.
MAITLAND, A. L. L., V.D., M.B. Glasg., F.R.C.S.E.: consultant surgeon, Bridge of Earn Hospital.
WHITE, JAMES, M.B., B.SC., Glasg., D.M.R.E.: consultant radiologist, Stracathro Hospital, Brechin.

Colonial Appointments.

DREW, G. R. H., M.B. Edin.: senior M.O. (administration), western region, Nigeria.
FURNESS, J. E., M.B. Lond.: senior M.O. (clinical), northern region, Nigeria.
GRIFFITH, G. V. A., M.D. Dubl.: A.D.M.S., Hong-Kong.
MOORE, G. W., M.R.C.S.: senior M.O. (administration), northern region, Nigeria.
MOORE, S. H., M.B. Dubl.: senior M.O., Hong-Kong.
SNELL, D. G., M.B. Lond.: A.M.D.S., Uganda.
TAYLOR, J. H., M.B. Edin.: senior M.O., Kenya.
THOMSON, I. G., M.B. Aberd.: senior M.O. (administration), northern region, Nigeria.
WILLIAMS, F. G., M.B. Birm.: senior M.O. (administration), western region, Nigeria.

Vacancies

ACADEMIC AND EDUCATIONAL

Sheffield University. Lecturer & Demonstrators in Anatomy.
Glasgow University. Lectureship in Medicine.
Chester Beatty Research Inst. Royal Cancer Hosp., S.W.3. Sr. Tech.
Edinburgh University. Chair of Surg. Science.
Inst. of Neurology, W.C.1. Courses Clin. Demonstrations. Wed. & Sat. from 4th April–23rd June.
Inst. of Laryngology & Otology, W.C.1. Week-end Course Aural Surgery. 20th, 21st and 22nd April.
University of London. P.G. Med. School. Symposium for Cons. on Clinical Management of Hypertension. 12th & 13th April.
University of London. Lecture "Recent Advances in the Study of Viral Growth in Cultivated Animal Cells." 23rd March '56.
Assoc. of Surgeons of Great Britian & Ireland. Moynihan Prize.
Inst. of Cancer Research, S.W.3. Clin. Research Path.
Faculty of Anaesthetists of Royal College of Surgeons of England. Examinerships.
Oxford University, Nuffield Dept. of Orthopædic Surgery. Graduate Asst. A.
Australia. Queensland University. Sr. Lecturer in Pharmacology.
South Africa. Natal University. Sr. Lecturer in Bacteriology & Serology & Sr. Lecturer in Chemical Pathology.
New South Wales University of Technology. Foundation Chair in Hosp. Admin.
London School of Hygiene & Tropical Med. Scholarships 1956/57 D.P.H. Course.

ANÆSTHETICS

Hackney Group H.M.C. Sr. H.O.
Royal National T.N. & E., W. Reg.
South West Met. R.H.B. P.-t. Sr. H.M.O.
Manchester R.H.B. & United Hosps. P.-t. Cons.
Manchester. South Manchester H.M.C. Sr. H.O.
Scotland. North-Eastern R.H.B. Sr. Reg.
Salisbury Group H.M.C. Reg.
Sheffield R.H.B. Cons.
Winchester. Royal Hants County. H.O.
Northampton Gen. H.O.
U.S.A. Cambridge, Mass. Residencies

BACTERIOLOGY

Scotland. Western R.H.B. Reg.

CASUALTY

Dreadnought Seamen's, S.E.10. Sr. H.O.
Hackney, E. 9. H.O.
Poplar Hospital, E.14. Sr. H.O.
Paddington Green Child's, W.2. Prereg. H.O.
Brighton. Royal Sussex County. H.O.'s.
Cheltenham Gen. & Eye. Sr. H.O.
Colchester. Essex County. Sr. H.O.

Newcastle R.H.B. Sr. Casualty Officer.
Northampton Gen. Sr. H.O. & H.O.
Swansea. Jr. H.M.O.
Swindon Hosp. Group. Sr. H.O.'s
Weston-super-Mare Gen. Sr. H.O.
Weymouth & Dist. Sr. H.O.

CHEST AND TUBERCULOSIS

Glasgow, Robroyston. Jr. H.M.O.
Ipswich. St. Helen's. H.O.
Lanchester, Co. Durham. Maiden Law. Jr. H.M.O.
Liverpool. Walton. Sr. H.O.
Paisley & Dist. Hosps. B.O.M. Jr. H.M.O.
Welsh R.H.B. Locum Sr. H.M.O.

DERMATOLOGY

St. John's Hosp. for Diseases of the Skin, W.C.2. Reg.
Guy's, S.E.1. P.-t. Reg.
Aberdeen Gen. Hosps. B.O.M. Locum H.O.

EAR, NOSE, AND THROAT

Birmingham & Midland Ear & Throat. H.O.'s or Sr. H.O.'s.
Brighton & Lewes H.M.C. Sr. H.O.
Carlisle. Cumberland Infy. Sr. H.O.
Glasgow, Victoria Infy. Pre-reg. H.O.
Northampton Gen. Sr. H.O.
Portsmouth Group H.M.C. Sr. H.O.
Reading. Royal Berks. H.O.
Scotland Western R.H.B. Sr. Reg. or Locum.
Southampton. Royal South Hants. & Gen. Sr. H.O.
Welsh R.H.B. Cons.

HÆMATOLOGY

Brentwood. North East Met. Regional Blood Transfusion Centre. Jr. H.M.O
South Western R.H.B. National Blood Transfusion Service. Sessional M.O.'s

INFECTIOUS DISEASES

Neasden, N.W. 10. Reg.

MEDICINE

Dreadnought Seamen's, S.E.10 Pre.-reg. H.O.
Nelson, S.W.20. Sr. H.O.
Queen Mary's Hosp. for East End, E.15. H.O.
South Lodge, N.21. H.O.
Birmingham R.H.B. Reg.
Bristol United Hosps. & South Western R.H.B. Reg.
Chichester. Royal West Sussex. Reg. & Locum.
East Anglian R.H.B. Reg.
Gainsborough. John Coupland. Jr. H.M.O.
Huddersfield, St. Luke's. Jr. H.M.O. & Sr. H.O.
Ipswich & East Suffolk. Sr. H.O.
Kirkcaldy Group of Hosps. Reg.
Medway & Gravesend H.M.C. Sr. H.O.
Portsmouth Group H.M.C. Sr. H.O.
Portsmouth Group H.M.C. Reg.
Romford. Victoria. H.O.
Scotland. South-Eastern R.H.B. Sr. Reg. or Reg.
Scotland. Western R.H.B. Cons.
Scunthorpe. War Mem. Pre-reg. H.O. or Sr. H.O.
Sheffield United Hosps. Sr. H.O.
Southampton. Royal South Hants. H.O.'s.
Stoke-on-Trent. City Gen. H.O.
Torquay. Torbay. Sr. H.O.

NEUROLOGY

National Hosp. for Nervous Diseases. Reg.

NEUROSURGERY

Guy's—Maudsley Neurosurgical Unit. Reg.

OBSTETRICS AND GYNÆCOLOGY

Hackney, E.9. H.O.
North Middlesex, N. 18. H.O & Pre-reg. H.O.
Birmingham United Hosps. Reg.
Bristol United Hosps. & South Western R.H.B. Reg.
Bromsgrove Gen. Pre-reg. H.O. & Locum.
Bury & Rosendale H.M.C. Sr. H.O
Carshalton. St. Helier. Sr. H.O.
Cheltenham Maternity. H.O.
Hastings. Buchanan. H.O.
Hitchin. North Herts. Reg.
Manchester. R.H.B. Reg.
Marie Curie, N.W.3. H.O.
Mid-Worcestershire H.M.C. Reg.
Newcastle Gen. H.O.
Newcastle R.H.B. Reg.
Portsmouth Group H.M.C. Pre-Reg. H.O.
Reading Combined Hosps. H.O.
Romford. Oldchurch. Sr. H.O.
Scotland. Eastern R.H.B. Reg.
Scotland Western R.H.B. Reg.
Sutton & Cheam Hosp. Maty. Annexe. P.-t. G.P.
Swansea. Sr. H.O.
Welsh R.H.B. Reg.

OPHTHALMOLOGY

Manchester United Hosps. Sr. H.M.O.
Birmingham R.H.B Reg.
Australia. Victorian Eye & Ear, East Melbourne. Permanent Med. Supt.

ORTHOPÆDICS

Ascot. Heatherwood Orthopædic. Locum Reg.
Ashford, Middx. H.O.
Braintree. Black Notley. H.O.
Carlisle. Cumberland Infy. Sr. H.O.
Carmarthen. West Wales Gen. Sr. H.O.
Derby. Derbyshire Royal Infy. Reg.
Leeds R.H.B. Reg.
Louth County Infy. Rez.
Northampton Gen. H.O.
Newcastle R.H.B. Reg.
Paisley & Dist. Hosps. B.O.M. Jr. H.M.O.
Portsmouth Group H.M.C. Pre-reg H.O.
Romford. Oldchurch. H.O.
St. Bartholomew's, E.C.1. Reg.
Sheffield. City Gen. Reg.
Southampton. Royal South Hants Sr. H.O.
Swansea. Sr. H.O.

PÆDIATRICS

Ashton, Hyde & Glossop H.M.C. Sr. H.O. or Jr. H.M.O.
Birmingham United Hosps. Sr. H.O. & H.O.
Hereford. County. H.O.
Kettering Gen. Sr. H.O.
Luton & Dunstable. H.O.
Nottingham City. Sr. H.O.
Southampton Child's. H.O.

PATHOLOGY

Group Pathological Lab., W.8. Sr. H.O.
Royal Marsden, S.W.3. Cons.
Royal Marsden, S.W.3. Locum Sr. H.M.O. or Sr. Reg.
Northwood, Middx. Mount Vernon. Sr. H.O.
Oxford United Hosps. Sr. H.O.

PHYSICAL MEDICINE

Whittington, N.19. Reg.
Royal Free, W.C.1. Sr. Reg.

PLASTIC SURGERY

Welsh R.H.B. Reg.

PSYCHIATRY

Abbots Langley. Leavesden. Jr. H.M.O.
Birmingham R.H.B. Reg.
Brentwood, Warley. Locum Sr. Reg.
Bromsgove. Barnsley Hall. Jr. H.M.O.
Dartford H.M.C. Sr. H.O. & Locum Sr. H.O.
Devizes. Roundway. Jr. H.M.O.
East Anglian R.H.B. Cons.
Greenock. Ravenscraig. Jr. H.M.O.
Huddersfield. Storthes Hall. Jr. H.M.O.
Leeds R.H.B. Reg.
Macclesfield. Parkside Mental. Jr. H.M.O.
Newcastle-upon-Tyne H.M.C. H.O.
Northern Ireland Hosps. Auth. Jr. H.M.O.
North West Met. R.H.B. Cons.
Scotland. Eastern R.H.B. (Dundee Royal Mental Hosp.) Cons. Phys. Supt. & Prof. Psych.
Scotland. Western R.H.B. Regs.
South Western R.H.B. Deputy Med. Supt. (Sr. H.M.O.).
South Western R.H.B. Sr. H.M.O.
South West Met. R.H.B. Sr. H.M.O
St. Alban's. Napsbury Mental Jr. H.M.O.

RADIOLOGY

East Anglian R.H.B. Reg.
Sheffield R.H.B. Cons.
Scotland Western R.H.B. Reg.
Sheffield R.H.B. Sr. H.M.O.
Watford & Dist. Peace Mem. Reg.

RADIOTHERAPY

Leeds United Hosps. Cons.

SURGERY

Battersea Gen, S.W.11. H.O.
Bolingbroke, S.W.11. H.O.
Central Middlesex, N.W.10. H.O.
London Jewish, E.1. Sr. H.O.
North Middlesex, N.18. H.O.
Royal Marsden, S.W.3. H.O.
St. George-in-the-East, E.1. H.O.
St. Leonard's, N.1. H.O.
Wanstead, E.11. H.O.
Aberdeen Gen. Hosps. B.O.M. Locum H.O.'s.
Barrow-in-Furness. North Lonsdale. H.O.
Birmingham R.H.B. Reg.
Bishop Auckland. Gen. H.O.
Brighton. Royal Sussex County. H.O.'s.
Burton upon Trent. Gen. H.O.
Chelmsford & Essex. Locum Reg.
Chelmsford & Essex. Pre-reg. H.O.'s
Cheltenham Gen. H.O.
Chesterfield Royal. H.O.
Crewe & Dist. Mem. Sr. H.O.
Derby. Derbyshire Royal Infy. Pre-reg. H.O. or Sr. H.O.
Doncaster Royal Infy. Sr. H.O.
Halifax Gen. H.O.
Hastings. Royal East Sussex. Pre-reg. H.O.'s.
Hastings. St. Helen's. Pre-reg. H.O.
Hereford. County. H.O.
Hitchin. Lister. H.O.
Huddersfield Royal Infy. H.O.
Kirkcaldy Gen. H.O.'s.
Leeds R.H.B. Reg.
Louth County Infy. Sr. H.O.
Macclesfield & Dist. H.M.C. Pre-reg. H.O.
Manchester. Booth Hall Child's. Reg.
Manchester R.H.B. Reg.
Manchester. West Manchester H.M.C. Pre-reg. H.O.'s.
Manchester. Wythenshawe. Sr. H.O.
Mildmay Mission, E.2. Sr. H.O.
Newcastle United Hosps. Reg.
Northampton Gen. H.O.
Northern Ireland Hosps, Auth. Reg.
Nottingham Gen. Pre-reg. H.O.
Nottingham Highbury. Sr. H.O.
Peterborough. Mem. H.O.
Plymouth. S. Devon & E. Cornwall Gen. Pre-reg. H.O.
Porth & Dist. Jr. H.M.O.
Portsmouth Group H.M.C. Sr. H.O & Pre-reg H.O.
Redhill County. Reg.
Romford. Oldchurch. H.O.
Romford. Victoria. Temp. Reg.
Scotland Western R.H.B. Reg.
Sheffield. Wharncliffe. Reg.
Stoke-on-Trent. City Gen. H.O.
Taunton & Somerset. H.O.

THORACIC SURGERY

Birmingham. Yardley Green. Sr. H.O.

UROLOGY

St. Peter's, St. Paul's & St. Philip's. Sr. Reg.

GENERAL PRACTICE

(Executive Councils Form E.C. 15A.)
Whitley Bay, Northumberland. Urban List approx. 1960.
Leeds. Rothwell Urban Dist. List 5431.

PUBLIC APPOINTMENTS

National Coal Board. (North Eastern Div.) Area M.O.
Gold Coast Local Civil Service. M.O.'s & M.O.H.'s.
Staffordshire C.C. Asst. County M.O. & School M.O.
London County Council. M.O. (P.H. Dept.).
Govt. of Eastern Region of Nigeria. Specialist (Orth., Surg.).
Buckinghamshire C.C. Asst. County M.O.
Peterborough Joint Education Board. School M.O. & Asst. M.O.H.
Malaya Federation. Specialist Radiologist.
Barbados Gen. Hosp. M.O.'s.
Gold Coast Local Civil Service. M.O.'s.

(Further particulars of above vacancies available on request to Advertisement Manager.)

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